Claims

1. A desolvation method of a polymer solution, in which a solvent is removed by steam stripping using an apparatus comprising a desolvation tank disposed at the upstream, a desolvation tank disposed at the downstream, a pipe that connects a gas phase portion of said desolvation tank at the downstream and a liquid phase portion of said desolvation tank at the upstream and at least one opening-degree adjusting mean fixed to said pipe, being characterized by controlling pressures such that a pressure difference ($\Delta P=P_2-P_1$) between pressure (P_2) of said gas phase portion of said desolvation tank at the downstream and pressure (P_1) of said gas phase portion of said desolvation tank at the upstream is allowed to be larger by from 0.005 to 0.6 MPa than a pressure difference ($\Delta P_0=P_{20}-P_{10}$) between pressure (P_{20}) of said gas phase portion of said desolvation tank at the downstream and a pressure (P_{10}) of said gas phase portion of said desolvation tank at the upstream when said opening-degree adjusting mean is fully opened.

2. The desolvation method of a polymer solution according to Claim 1, wherein pressure of said gas phase portion of said desolvation tank at the downstream is in the range from 0.02 to 1 MPaG.

3. The desolvation method of a polymer solution according to Claim 2, wherein temperature of said liquid phase portion of said desolvation tank at the downstream is in the range from 100°C to 200°C.

4. The desolvation method of a polymer solution according to Claim 3, wherein said solvent is at least one type selected from the group consisting of cyclohexane, cyclopentane, cycloheptane, toluene, benzene, xylene, n-hexane, n-pentane, isopentane, n-heptane, n-octane, n-decane and dichloromethane.

5. The desolvation method of a polymer solution according to Claim 4, wherein polymer contained in said polymer solution is butadiene rubber, isoprene rubber, styrene-butadiene rubber, styrene·isoprene rubber, ethylene·α-olefin copolymer rubber, ethylene·α-olefin·non-conjugated diene copolymer rubber, butyl

rubber, styrene·butadiene·styrene block copolymer, hydrogenated styrene·butadiene·styrene block copolymer, butadiene resin or acrylic resin.

6. The desolvation method of a polymer solution according to Claim 1, wherein temperature of said liquid phase portion of said desolvation tank at the downstream is in the range from 100°C to 200°C.

7. The desolvation method of a polymer solution according to Claim 1, wherein said opening-degree adjusting mean is a pressure adjusting valve or an orifice plate.

8. The desolvation method of a polymer solution according to Claim 1, wherein concentration of said solvent remaining in a solvent-containing polymer to be loaded in said desolvation tank at the downstream is 10% by mass or less.

9. The desolvation method of a polymer solution according to Claim 1, wherein said polymer solution is continuously supplied and polymer contained in said polymer solution is continuously recovered.

10. The desolvation method of a polymer solution according to Claim 1, wherein polymer contained in said polymer solution is butadiene rubber, isoprene rubber, styrene-butadiene rubber, styrene·isoprene rubber, ethylene·α-olefin copolymer rubber, ethylene·α-olefin·non-conjugated diene copolymer rubber, butyl rubber, styrene·butadiene·styrene block copolymer, hydrogenated styrene·butadiene·styrene block copolymer, butadiene resin or acrylic resin.

11. The desolvation method of a polymer solution according to Claim 1, wherein said solvent is at least one type selected from the group consisting of cyclohexane, cyclopentane, cycloheptane, toluene, benzene, xylene, n-hexane, n-pentane, isopentane, n-heptane, n-octane, n-decane and dichloromethane.

12. A desolvation method of a polymer solution, in which a solvent is removed by steam stripping using an apparatus comprising a desolvation tank disposed at the upstream, a desolvation tank disposed at the downstream, a pipe that connects a gas phase portion of said desolvation tank at the downstream and a liquid

phase portion of said desolvation tank at the upstream and at least one opening-degree adjusting mean fixed to said pipe, being characterized by controlling pressures such that a pressure difference ($\Delta P=P_2-P_1$) between pressure (P_2) of said gas phase portion of said desolvation tank at the downstream and pressure (P_1) of said gas phase portion of said desolvation tank at the upstream is allowed to be 0.036 MPa or larger.

13. The desolvation method of a polymer solution according to Claim 12, wherein pressure of said gas phase portion of said desolvation tank at the downstream is in the range from 0.02 to 1 MPaG.

14. The desolvation method of a polymer solution according to Claim 13, wherein temperature of said liquid phase portion of said desolvation tank at the downstream is in the range from 100°C to 200°C.

15. The desolvation method of a polymer solution according to Claim 14, wherein said solvent is at least one type selected from the group consisting of cyclohexane, cyclopentane, cycloheptane, toluene, benzene, xylene, n-hexane, n-pentane, isopentane, n-heptane, n-octane, n-decane and dichloromethane.

16. The desolvation method of a polymer solution according to Claim 15, wherein polymer contained in said polymer solution is butadiene rubber, isoprene rubber, styrene-butadiene rubber, styrene·isoprene rubber, ethylene·α-olefin copolymer rubber, ethylene·α-olefin·non-conjugated diene copolymer rubber, butyl rubber, styrene·butadiene·styrene block copolymer, hydrogenated styrene·butadiene·styrene block copolymer, butadiene resin or acrylic resin.

17. The desolvation method of a polymer solution according to Claim 12, wherein temperature of said liquid phase portion of said desolvation tank at the downstream is in the range from 100°C to 200°C.

18. The desolvation method of a polymer solution according to Claim 12, wherein said opening-degree adjusting mean is a pressure adjusting valve or an orifice plate.

19. The desolvation method of a polymer solution according to

Claim 12, wherein concentration of said solvent remaining in a solvent-containing polymer to be loaded in said desolvation tank at the downstream is 10% by mass or less.

20. The desolvation method of a polymer solution according to Claim 12, wherein said polymer solution is continuously supplied and polymer contained in said polymer solution is continuously recovered.

21. The desolvation method of a polymer solution according to Claim 12, wherein polymer contained in said polymer solution is butadiene rubber, isoprene rubber, styrene-butadiene rubber, styrene·isoprene rubber, ethylene·α-olefin copolymer rubber, ethylene·α-olefin·non-conjugated diene copolymer rubber, butyl rubber, styrene·butadiene·styrene block copolymer, hydrogenated styrene·butadiene·styrene block copolymer, butadiene resin or acrylic resin.

22. The desolvation method of a polymer solution according to Claim 12, wherein said solvent is at least one type selected from the group consisting of cyclohexane, cyclopentane, cycloheptane, toluene, benzene, xylene, n-hexane, n-pentane, isopentane, n-heptane, n-octane, n-decane and dichloromethane.